adopted based on travel time to the wells within the zone of influence. Prin cipally in the northwestern and midwestern states, local communities hav developed aquifer protection plans based on hydrogeologic mapping wit identification of aquifers, recharge areas, and wellfields.

The Long Island hydrogeologic zoning system is based on an extensiv data base accumulated through decades of study of a complex flow system However, the remainder of the above examples have been accomplished i areas of relatively simple aquifer systems without extensive data gathering In many areas the available data should be adequate to develop at least first draft maps suitable for the enactment of zoning and protective ordinances As data are gathered over time, the areas can be revised. In fact, all th programs previously discussed are subject to periodic revisions, includin realignment of the boundaries delineating critical protection areas. A! though any change in a planning tool can generate controversy, the ongoin nature of programs to define aquifer hydrogeologic characteristics to dat has not served as an impediment to passage or enforcement of effective cor trols.

The Massachusetts Department of Environmental Quality Engineerin (DEQE) has developed a unique water supply protection atlas for use b state and local governments in ground water protection programs. The ath consists of four overlays for each of the 177 USGS topographic quadrangl maps (scale: 1:25,000) that cover the state. The overlays consist of (J sources of public water supply; (2) waste sources including surface irr poundments, hazardous waste sites, landfills, auto junk yards, road sa storage areas, and permitted discharges to surface and ground water (160 statewide); (3) aquifer information including areas of equal potential we yield from USGS atlas series; and (4) drainage basins delineating major rive basin and subbasin divides. Each Massachusetts community has been issue the overlays to be used on the USGS quadrangle maps specific to their tow boundaries. A handbook describing the atlas and providing instructions o verifying, updating, and expanding the information in the atlas has bee distributed. A few towns have added contamination sources, such as unde: ground storage tanks. DEQE is in the process of computerizing the system i conjunction with USGS. A sample portion of a quadrangle map with ove: lays is shown in Figure 4.1. The water supply protection atlas has assiste municipal government in land use planning and water supply manag< ment. DEQE has used the atlas in identifying priorities for monitoring ei forcement and remedial action programs for its solid and hazardous wasi regulatory program.